

IDAHO DEPARTMENT OF FISH & GAME

Jerry M. Conley, Director

FEDERAL AID TO FISH AND WILDLIFE RESTORATION Job Performance Report

Project F-73-R-3

Fishery Research



SUBPROJECT II: SALMON AND STEELHEAD INVESTIGATIONS
Study II: Salmon Spawning Ground Surveys

Period Covered: 1 March 1980 to 28 February 1981 by

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Ronald L. Lindland, Regional Fishery Biologist Kent W.
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April, 1981

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JOB PERFORMANCE REPORT

State of Idaho

Name: SALMON AND STEELHEAD INVESTIGATIONS

Project No. F-73-R-3

Title: Salmon Spawning Ground Surveys

Study II

Period Covered: 1 March 1980 to 28 February 1981

ABSTRACT

Each year regional fishery biologists survey major chinook salmon spawning areas in their respective regions to count the number of redds constructed in trend count areas and to obtain age and sex composition data. The data are made available for trend analysis, management and research use.

Redd counts, sex and age data for 1980 are presented in a series of attached tables and maps.

Authors:

David W. Ortmann, Anadromous Fisheries Manager
Ronald L. Lindland, Regional Fishery Biologist
Kent W. Ball, Regional Fishery Biologist
Will W. Reid, Regional Fishery Manager

RECOMMENDATIONS

The redd count surveys, sex and age composition data collections should be continued to provide management data.

OBJECTIVES

To obtain an index to spawning escapement by counting chinook salmon redds in established trend areas.

To obtain age and sex composition data of the chinook spawning population.

TECHNIQUES USED

Redd counts are made from low flying, fixed-wing aircraft, helicopter or on foot depending on which technique is best suited for a particular stream. Redds are counted when preliminary observations indicate that spawning is over and before redds become obscure from algae and silt.

Carcass surveys ideally are made three times during post-spawning die-off to eliminate bias in sex ratios noted early and late in the season.

Chinook redd counts are included for selected tributaries of the Clearwater River to assist evaluation of reintroduction efforts.

FINDINGS

Redd count surveys and sex and age composition data collections were made during the late summer of 1980. These data are summarized in attached tables and maps.

For the second consecutive year, a record low number of redds was counted in areas used by spring and summer run fish. The abundance of jack salmon kelts on the spawning grounds was again low in 1980, which gives rise to a forecast of small runs for 1981.

Due to the extreme scarcity of kelts on spawning grounds in 1980, the customary carcass surveys for age and sex composition data were not conducted on some waters. The waters not surveyed were Lemhi River, Marsh Creek drainage, upper Salmon River, upper Valley Creek and upper East Fork Salmon River.

Table 1. Salmon River drainage chinook salmon redd counts, 1980.

Streams	1975	1976	1977	1978	1979	5-Year average	1980
<u>Spring chinook</u>							
Alturas Lake Creek	60	16	85	303	29	99	7
Upper Salmon River	509	378	698	1,707	205	699	47
Upper Valley Creek	189	nc	18	141	25	93	6
Upper Yankee Fork	60	40	6	33	18	31	0
Upper East Fork	348	75	168	841	57	298	6
Herd Creek	11	27	6	26	2	14	0
Marsh Cr. Drainage	201	48	98	270	47	133	9
Lemhi River	366	241	474	796	154	406	47
North Fork Salmon R.	14	6	31	29	nc	20	nc
Bear Valley Creek	215	76	129	184	69	135	15
Elk Creek	169	61	86	208	49	115	8
Sulphur Creek	50	14	5	64	15	30	2
Upper Big Creek	<u>77</u>	<u>22</u>	<u>9</u>	<u>95</u>	<u>15</u>	<u>44</u>	<u>4</u>
Subtotal	2,269	1,004	1,813	4,697	685	2,117	151
<u>Summer chinook</u>							
Lower Salmon River	45	44	94	349	nc	133	11
Lower Valley Creek	80	43	63	219	15	84	4
Lower East Fork	38	39	136	nc	33	62	0
Loon Creek	32	31	62	29	nc	39	9
South Fork Salmon R.	238	241	226	251	115	214	116
Johnson Creek	69	68	81	113	36	73	24
Secesh R.-Lake Cr.	<u>10</u>	<u>17</u>	<u>27</u>	<u>91</u>	<u>20</u>	<u>33</u>	<u>20</u>
Subtotal	512	483	689	1,052	219	638	184
<u>Unclassified Spawners</u>							
Camas Creek	128	61	84	148	15	87	17
Lower Yankee Fork	35	3	12	27	nc	19	0
West Fork Yankee Fork	<u>55</u>	<u>11</u>	<u>37</u>	<u>98</u>	<u>13</u>	<u>43</u>	<u>2</u>
Subtotal	218	75	133	273	28	149	19
Total	2,999	1,562	2,635	6,022	932	2,904	354

Table 2. Clearwater River drainage chinook salmon redd counts, 1980.

	Number of redds counted in:					5-Year average	1980
Streams	1975	1976	1977	1978	1979		
<u>Selway Drainage</u>							
Selway River	21	58	97	125	21	64	36
Bear Creek	5	14	18	13	3	11	7
Running Creek	0	3	2	6	0	2	1
Whitecap Creek	1	4	1	nc	2	2	3
Moose Creek	<u>4</u>	<u>15</u>	<u>23</u>	<u>17</u>	<u>4</u>	<u>13</u>	<u>4</u>
Subtotal	31	94	141	161	30	92	51
<u>Lochsa Drainage</u>							
Crooked Fork	6	36	51	37	6	27	16
Brushy Fork	<u>4</u>	<u>13</u>	<u>15</u>	<u>25</u>	<u>12</u>	<u>14</u>	<u>10</u>
Subtotal	10	49	66	62	18	41	26
<u>South Fork Drainage</u>							
Newsome Creek	10	3	9	14	6	8	5
Crooked River	41	8	50	23	2	25	8
Red River	<u>20</u>	<u>15</u>	<u>50</u>	<u>52</u>	<u>20</u>	<u>31</u>	<u>31</u>
Subtotal	71	26	109	89	28	64	44
Total	112	169	316	312	76	197	121

Table 3. Length frequency distribution for spring chinook kelts, 1980.

Fork length (in.)	Bear Valley Cr.		Elk Creek		Sulphur Creek		Big Creek (Upper)	
	Male	Female	Male	Female	Male	Female	Male	Female
22								
23								
Subtotal	0	0	0	0	0	0	0	0
24								
25								
26								
27	1							
28	2	1			0	0		
29								
30								
31								
Subtotal	3	1	0	0	0	0	0	0
32								
33								
34		2						2
35								
36		3						
37								
38	1							
39		1						
40	1							
41								
42								
43								
44								
45								
Subtotal	2	6	0	0	0	0	0	2
Grand total	5	7	0	0	0	0	0	2

Table 4. Length frequency distribution for summer chinook kelts, 1980.

Fork length (in.)	Johnson Creek		Lake Creek Secesh River		South Fork Salmon River	
	Male	Female	Male	Female	Male	Female
19	1					
20						
21						
22	2					
23	1					
24			2			1
Subtotal	4	0	2	0	0	1
25	1		1			
26	3			1	2	
27	5	1			1	
28	3	1				1
29	2	4				
30	4	3				
31		1				
32	2	1			1	
33						
Subtotal	20	11	1	1	4	1
34	1	1				
35	1					
36	2				1	
37						
38		1				
39		1				
40						
41						
42						
43						
44						
45						
46						
Subtotal	4	3	0	0	0	1
Grand total	28	14	3	1	4	3

Table 5. Percent age composition, by sex, of spring chinook kelts, 1980.

Stream and age group	Males	Females	Males & Females
Bear Valley Creek			
Age group 3 ₂	0	0	0
Age group 4 ₂	60	14	33
Age group 5 ₂	30	86	67
	100 (n=5)	100 (n=7)	100 (n=12)
Elk Creek			
Age group 3 ₂	0	0	0
Age group 4 ₂	0	0	0
Age group 5 ₂	0	0	0
	0 (n=0)	0 (n=0)	0 (n=0)
Sulphur Creek			
Age group 3 ₂	0	0	0
Age group 4 ₂	0	0	0
Age group 5 ₂	0	0	0
	0 (n=0)	0 (n=0)	0 (n=0)
Big Creek (Upper)			
Age group 3 ₂	0	0	0
Age group 4 ₂	0	100	100
Age group 5 ₂	0	0	0
	0 (n=0)	100 (n=2)	100 (n=2)

Table 6. Percent age composition, by sex, of summer chinook kelts, 1980.

Stream and age group	Males	Females	Males & Females
Johnson Creek			
Age group 3 ₂	14	0	10
Age group 4 ₂	72	79	74
Age group 5 ₂	14	21	16
	100 (n=28)	100 (n=14)	100 (n=42)
Lake Creek and Secesh River			
Age group 3 ₂	67	0	50
Age group 4 ₂	33	100	50
Age group 5 ₂	0	0	0
	100 (n=3)	100 (n=1)	100 (n=4)
South Fork Salmon River			
Age group 3 ₂	0	33	14
Age group 4 ₂	100	33	71
Age group 5 ₂		34	15
	100 (n=4)	100 (n=3)	(n=7)

A P P E N D I X

LEGEND

Ground Survey Sections

Aerial Survey Sections

Ground Redd Counts

Aerial Redd Counts

Aerial-Ground Check Areas

Aerial-Ground Check Area Count

Migratory Block

Road

Trail

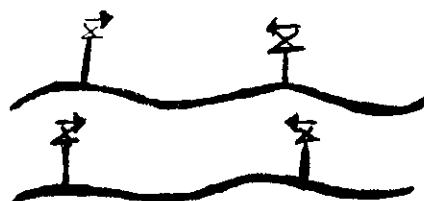
Forest Service Stations

Landing Strip

Fence

Pack Bridge

Highway Bridge



(4)

(3)



*



DRAINAGE Salmon River

SURVEY DATE 9/3/80

STREAM S. F. Salmon River

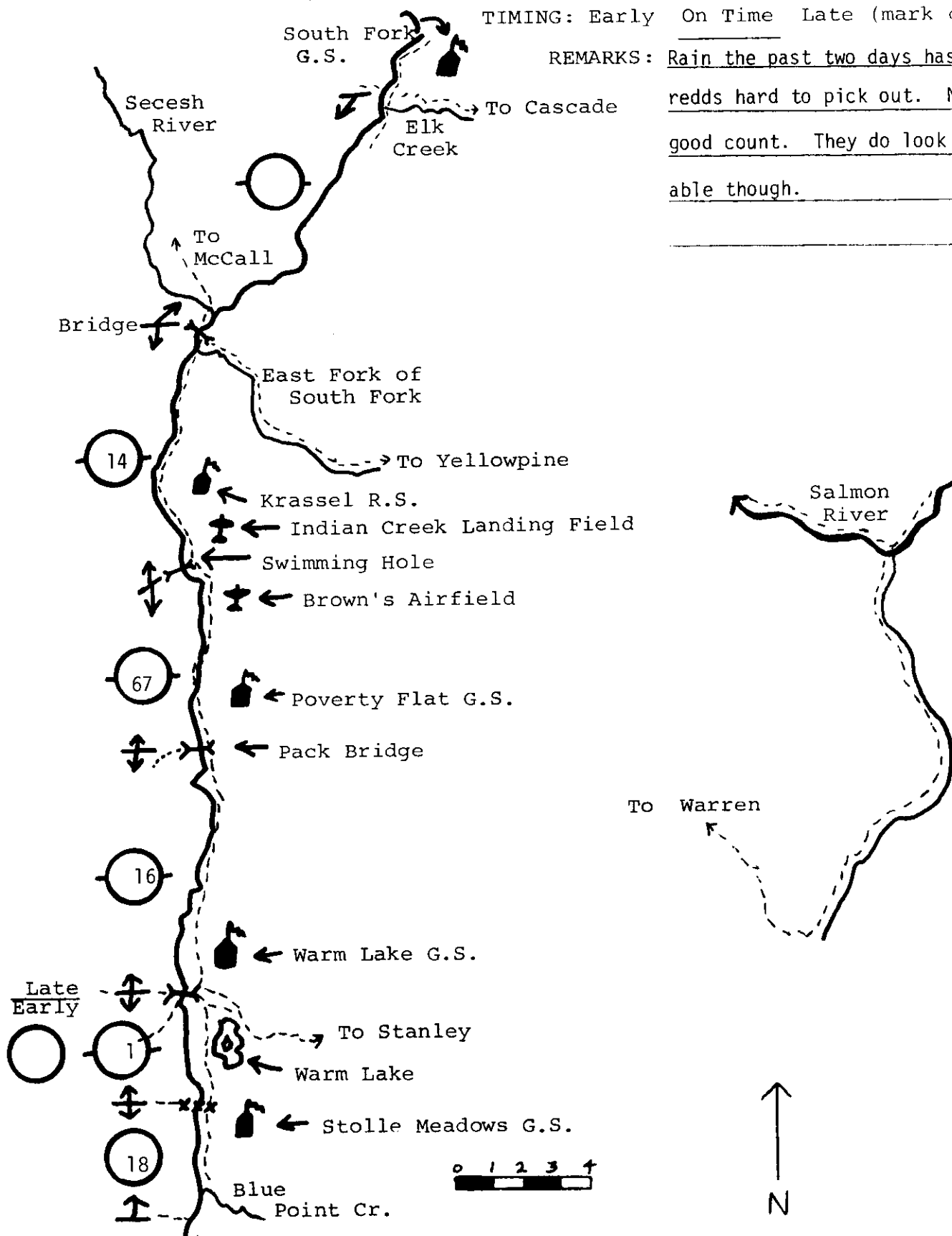
MAP SCALE 1/4" - 1 mile

OBSERVATION CONDITIONS Excellent

OBSERVER Reid

TIMING: Early On Time Late (mark one)

REMARKS: Rain the past two days has made
redds hard to pick out. Not a
good count. They do look reason-
able though.



Lake Cr - 8/19/80

DRAINAGE S. F. Salmon River

SURVEY DATE Secesh - 8/31/80

STREAM Secesh and Lake Creek

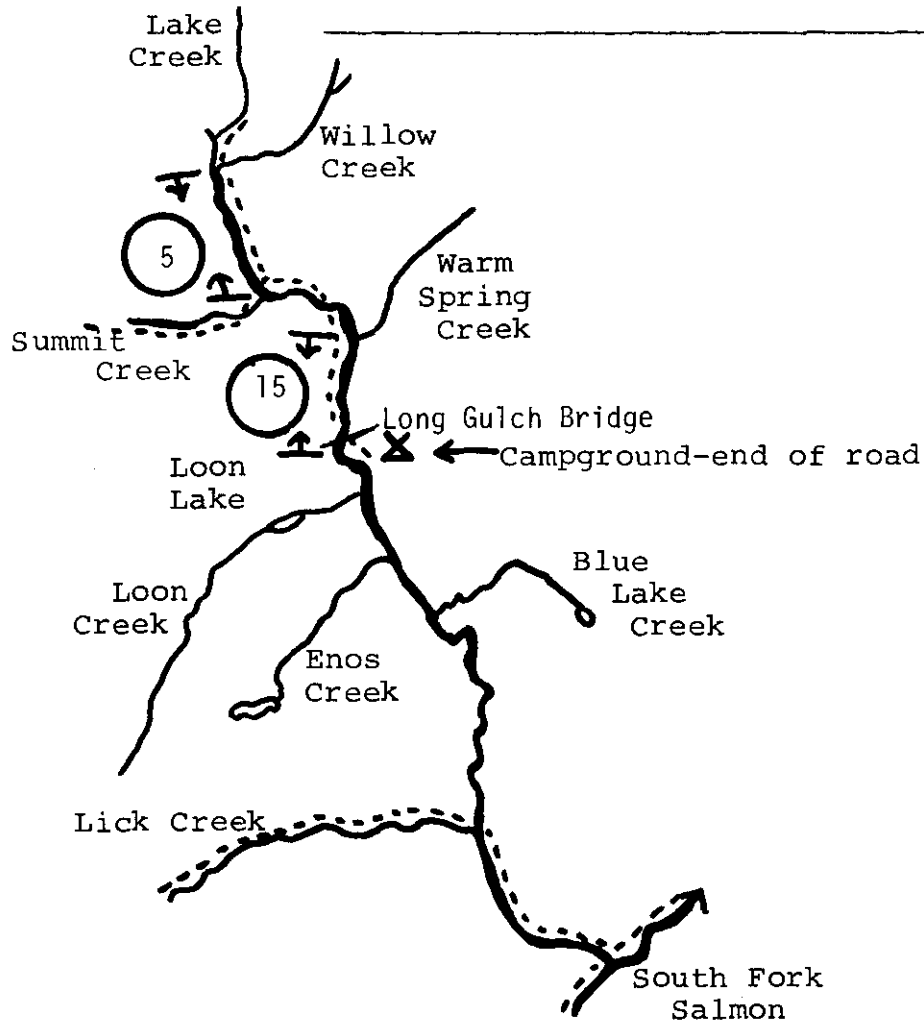
MAP SCALE 1" = 4 miles

OBSERVATION CONDITIONS Fair

OBSERVER Anderson

TIMING: Early On Time Late (mark one)

REMARKS: _____



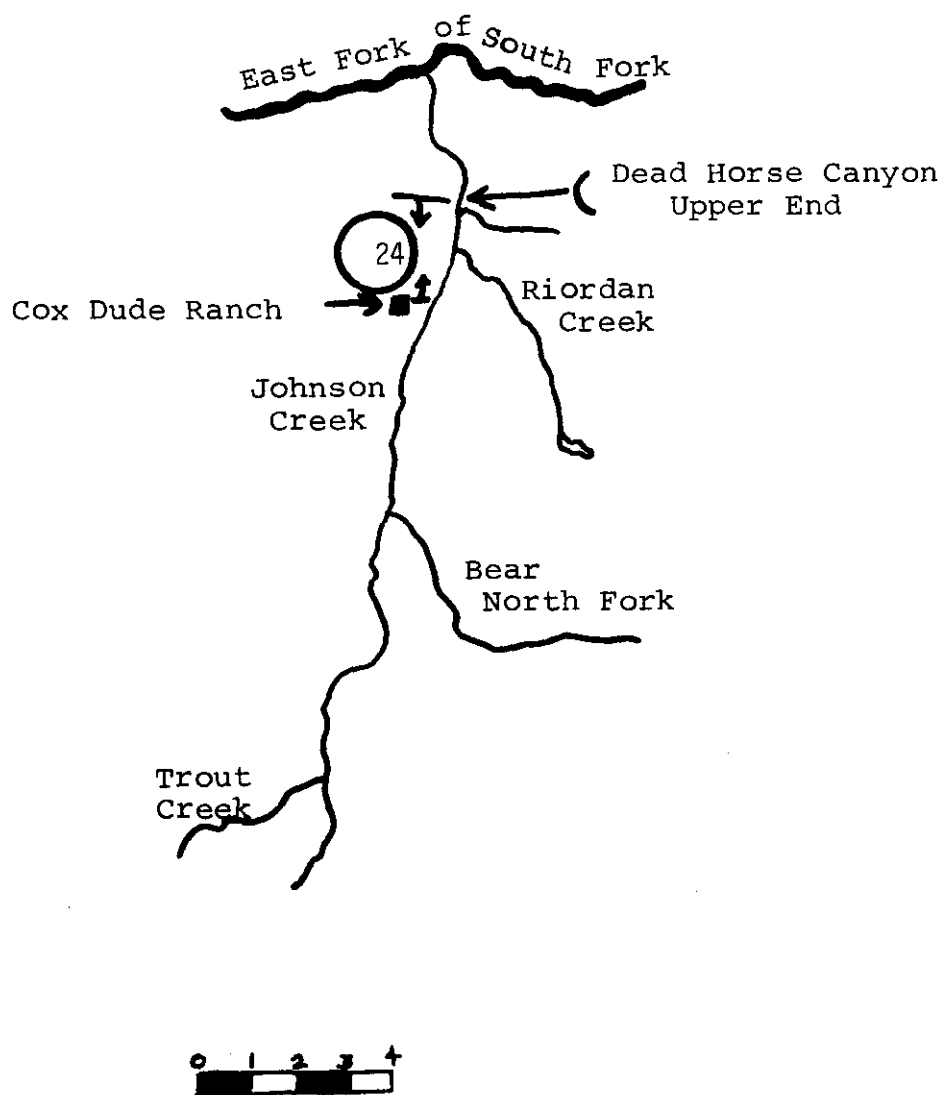
DRAINAGE E. F. of South Fork SURVEY DATE 9/3/80

STREAM Johnson Creek MAP SCALE 1" = 4 miles

OBSERVATION CONDITIONS _____ OBSERVER Reid

TIMING: Early On Time Late (mark one)

REMARKS: _____



DRAINAGE M. F. Salmon River

SURVEY DATE 9/4/80

STREAM Elk Creek

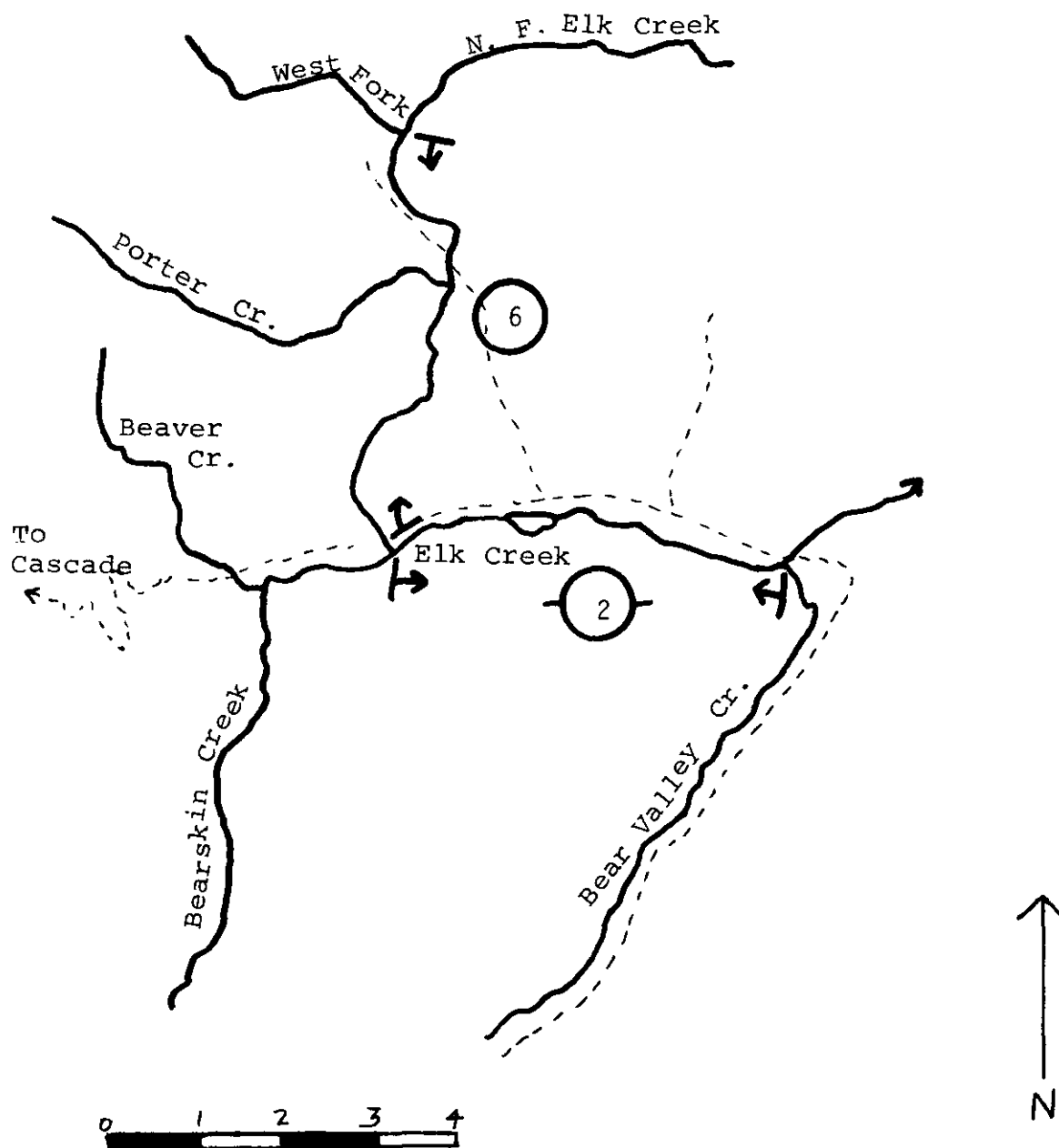
MAP SCALE 1" = 2 miles

OBSERVATION CONDITIONS Excellent

OBSERVER Reid and Anderson

TIMING: Early On Time Late (mark one)

REMARKS: _____



DRAINAGE M. F. Salmon River

SURVEY DATE 7/4/80

STREAM Bear Valley Creek

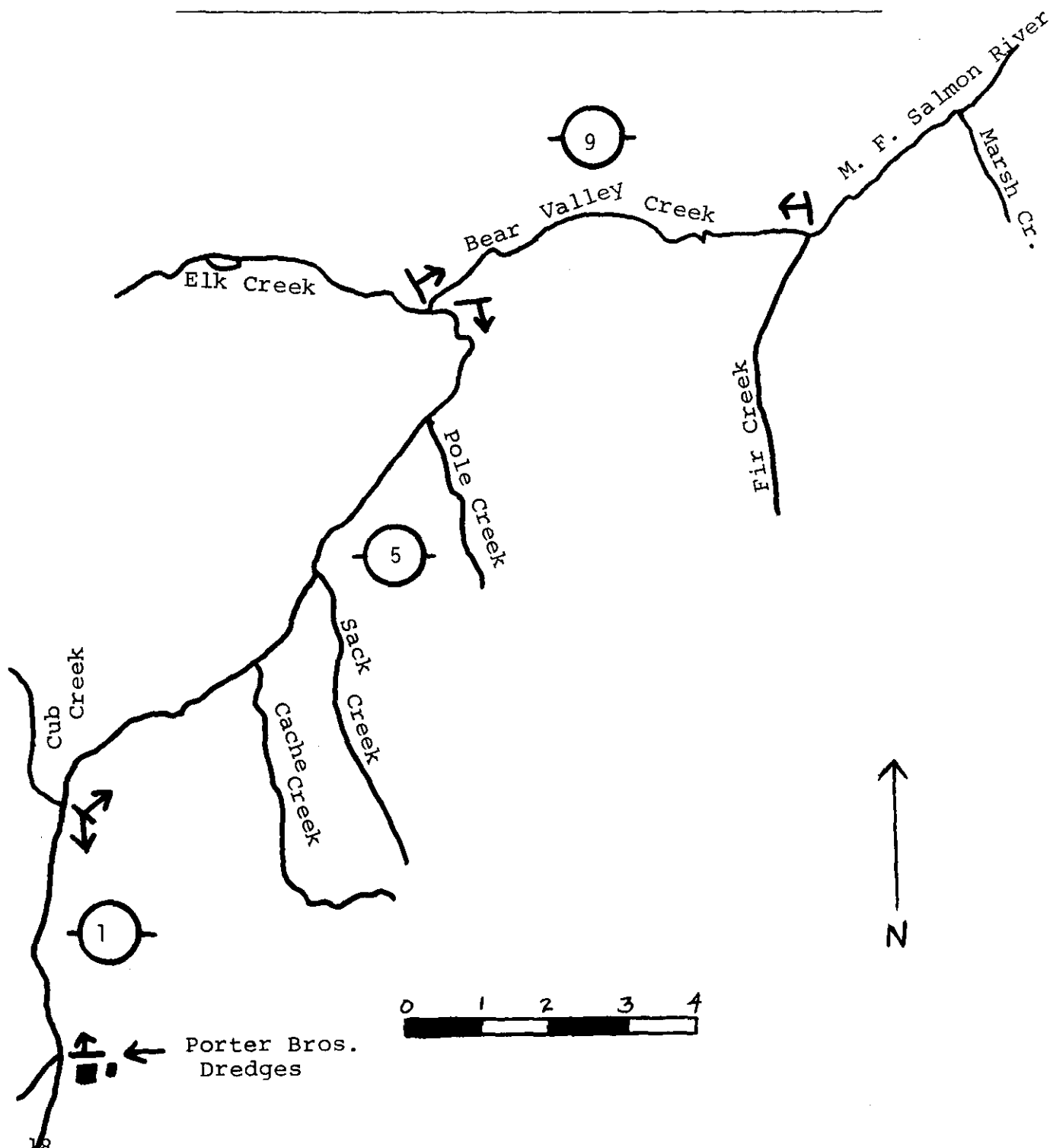
MAP SCALE 1" = 2 miles

OBSERVATION CONDITIONS Excellent

OBSERVER Reid and Anderson

TIMING: Early On Time Late (mark one)

REMARKS: _____



DRAINAGE M. F. Salmon River
Marsh, Beaver, Knapp,
STREAM Capehorn Creeks

SURVEY DATE August 14, 15, 1980

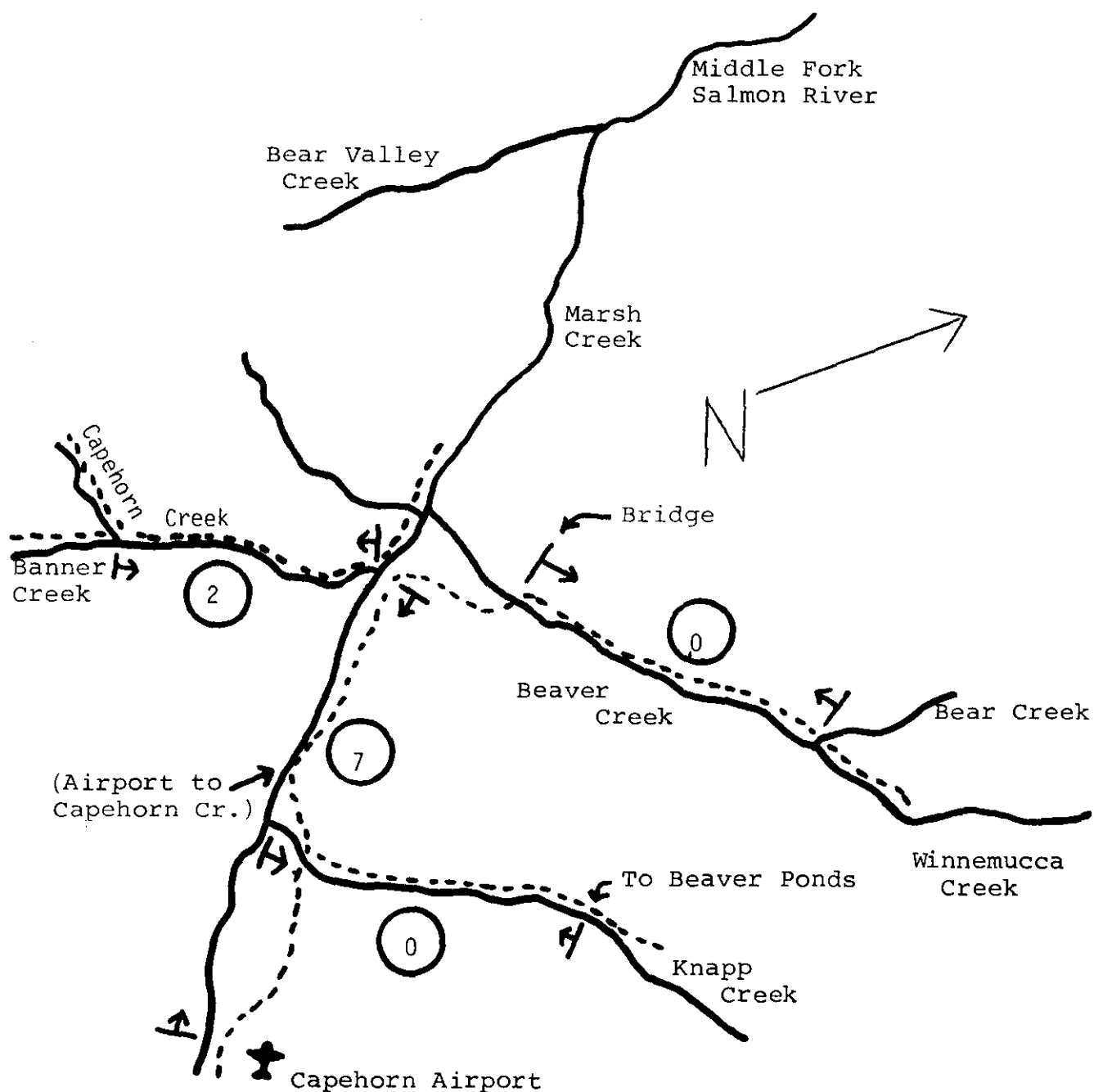
MAP SCALE 2/3" - 1 mile

OBSERVATION CONDITIONS Good

OBSERVER Ball, Meyers, Gard, Some

TIMING: Early On Time Late (mark one)

REMARKS:



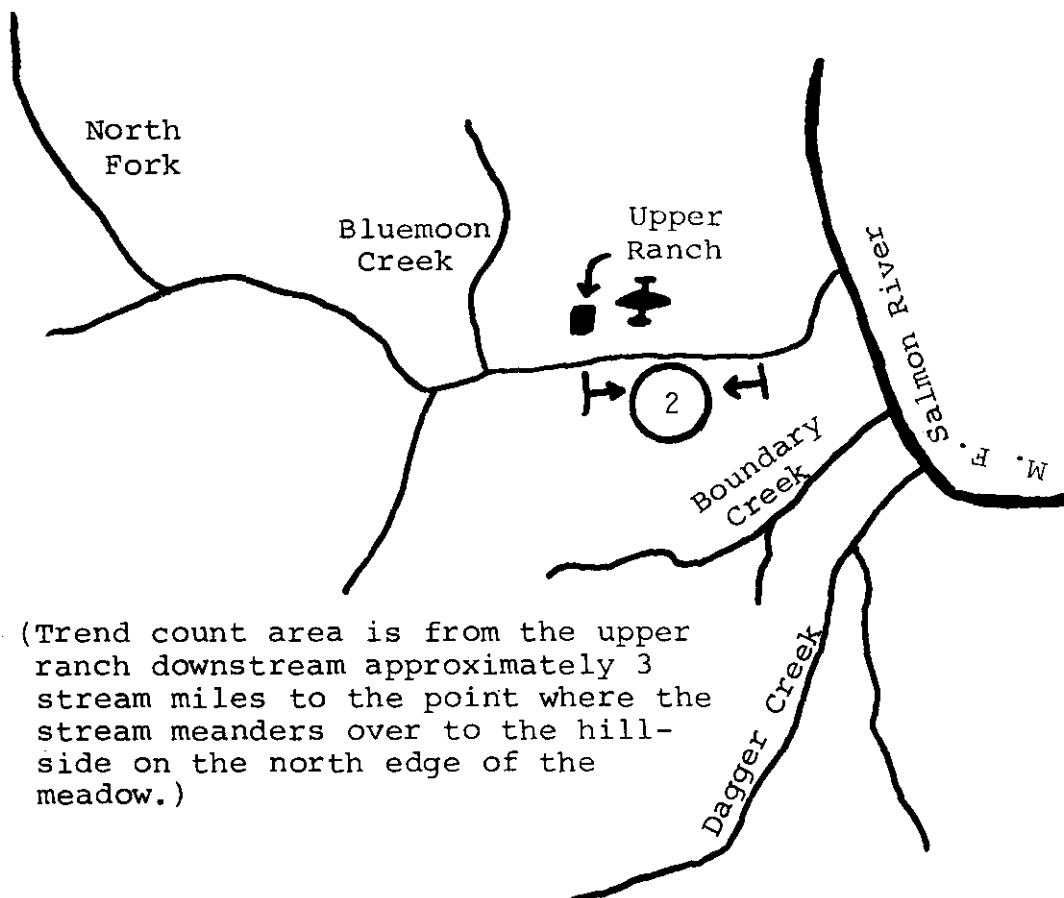
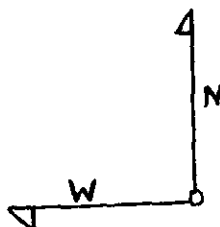
DRAINAGE M. F. Salmon River SURVEY DATE 8/26/80

STREAM Sulphur Creek MAP SCALE 1/6" = 1 mile

OBSERVATION CONDITIONS Excellent OBSERVER Reid and Anderson

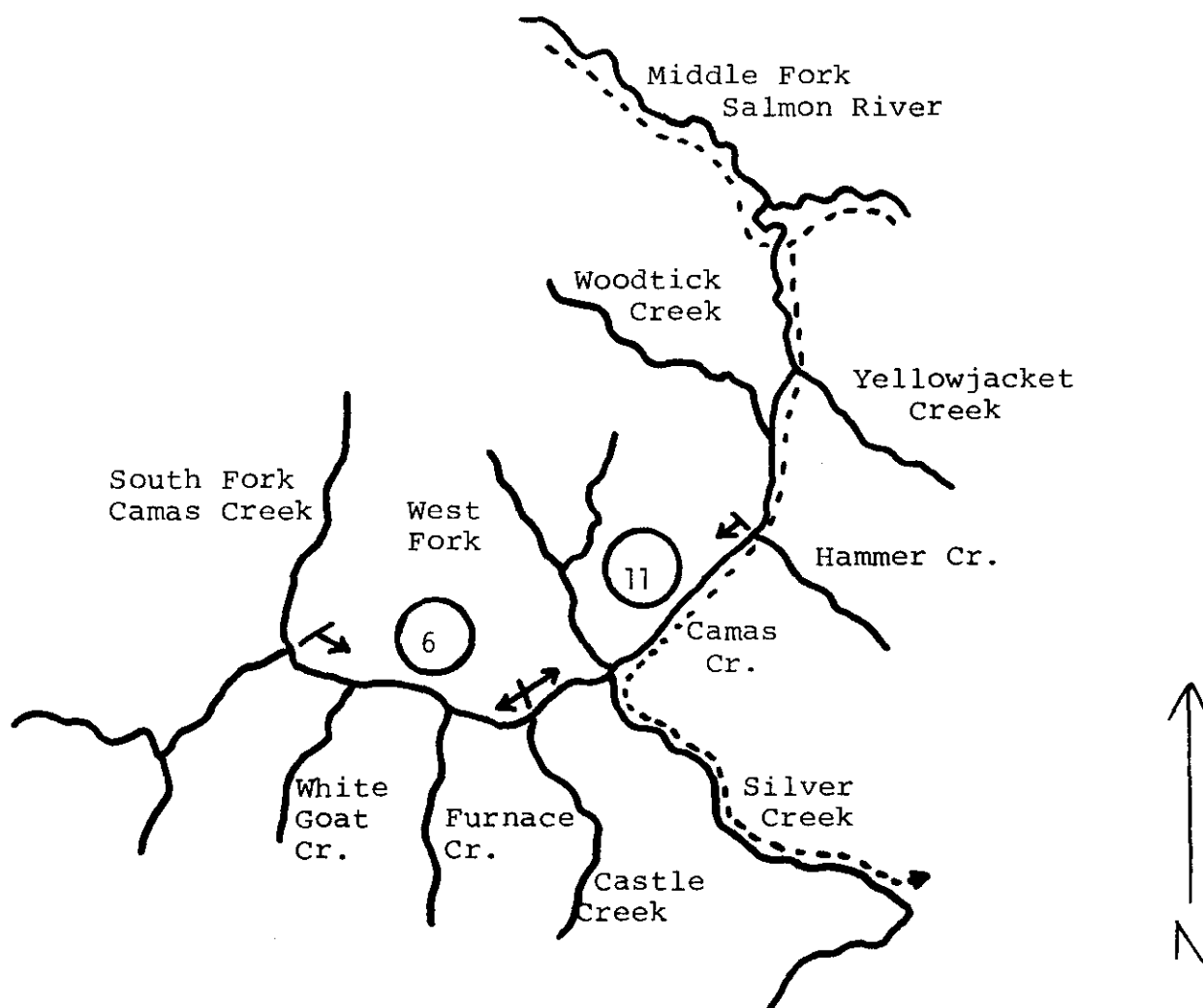
TIMING: Early On Time Late (mark one)

REMARKS: _____



(Trend count area is from the upper ranch downstream approximately 3 stream miles to the point where the stream meanders over to the hillside on the north edge of the meadow.)

DRAINAGE M. F. Salmon River SURVEY DATE August 28, Sept. 3, 1980
STREAM Camas Creek MAP SCALE 1/4" = 1 mile
OBSERVATION CONDITIONS Good OBSERVER Ball, Gard
TIMING: Early On Time Late (mark one)
REMARKS: Flew upper section 9/3/80.



DRAINAGE M. F. Salmon River

SURVEY DATE 8/17/80

STREAM Big Creek

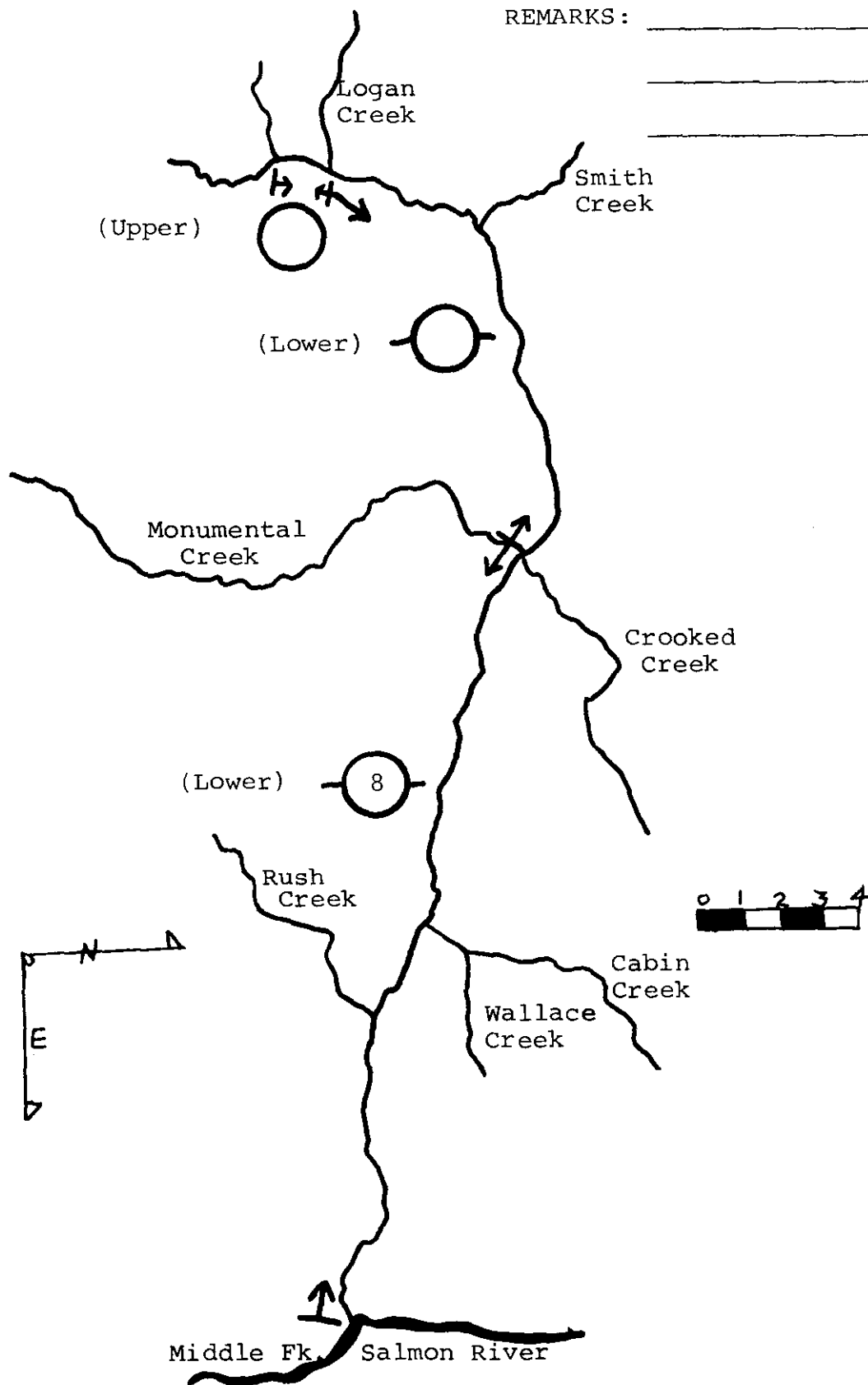
MAP SCALE 1" = 4 miles

OBSERVATION CONDITIONS Excellent

OBSERVER Reid and Anderson

TIMING: Early On Time Late (mark one)

REMARKS: _____



DRAINAGE Salmon River

SURVEY DATE August 25, 1980

STREAM Salmon River

MAP SCALE 1/4" = 1 mile

OBSERVATION CONDITIONS Good

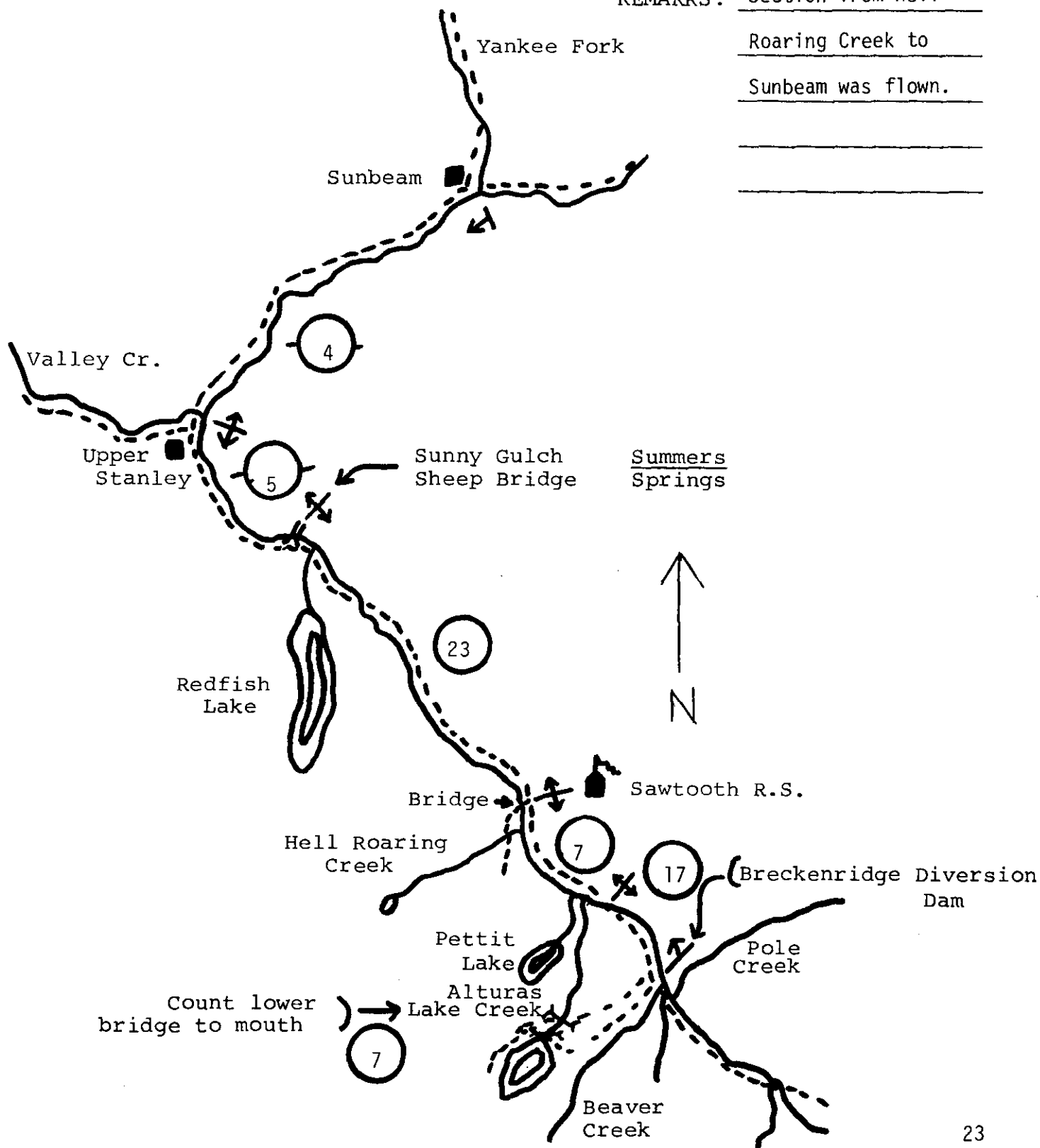
OBSERVER Ball, Jeppson

TIMING: Early On Time Late (mark one)

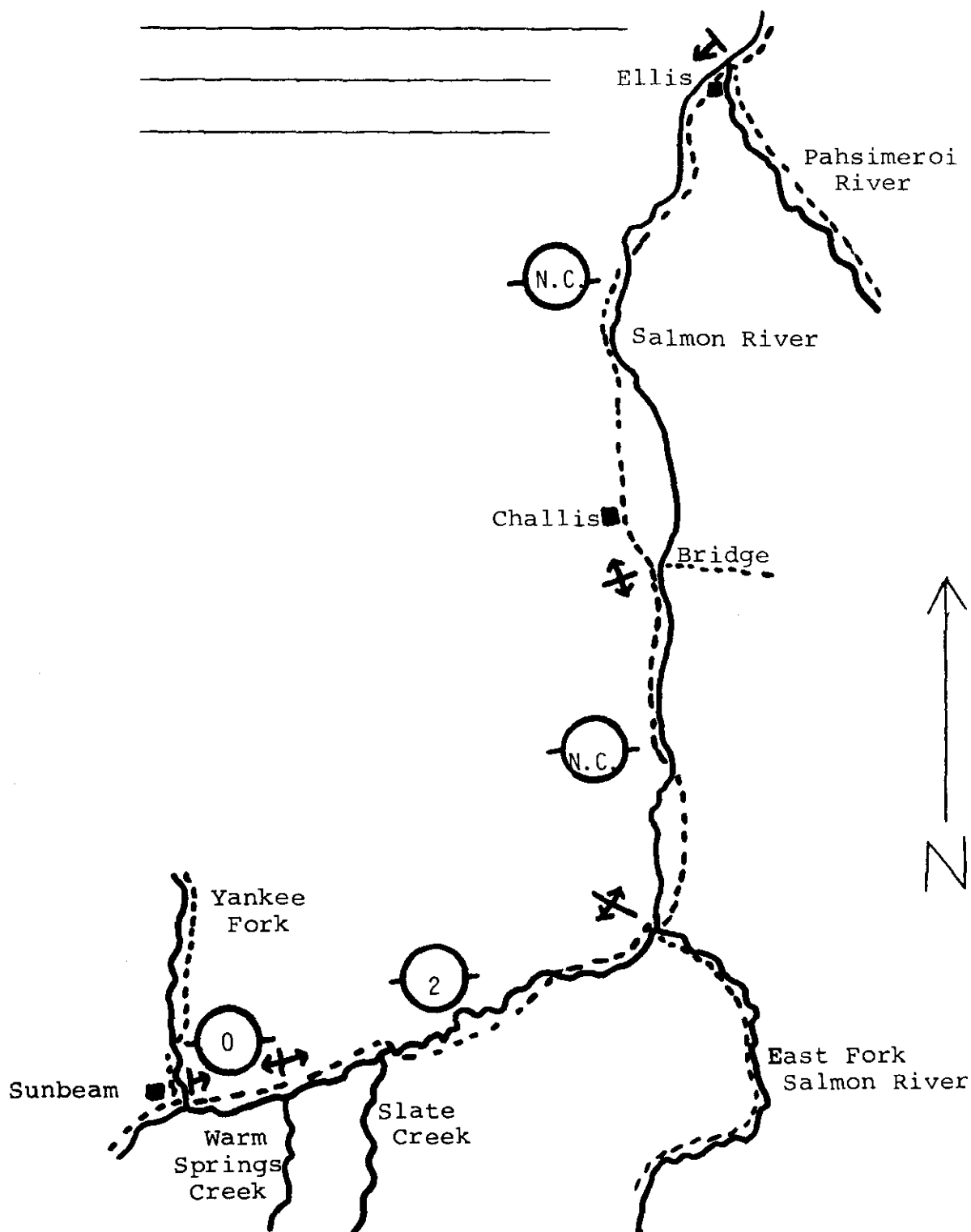
REMARKS: Section from Hell

Roaring Creek to

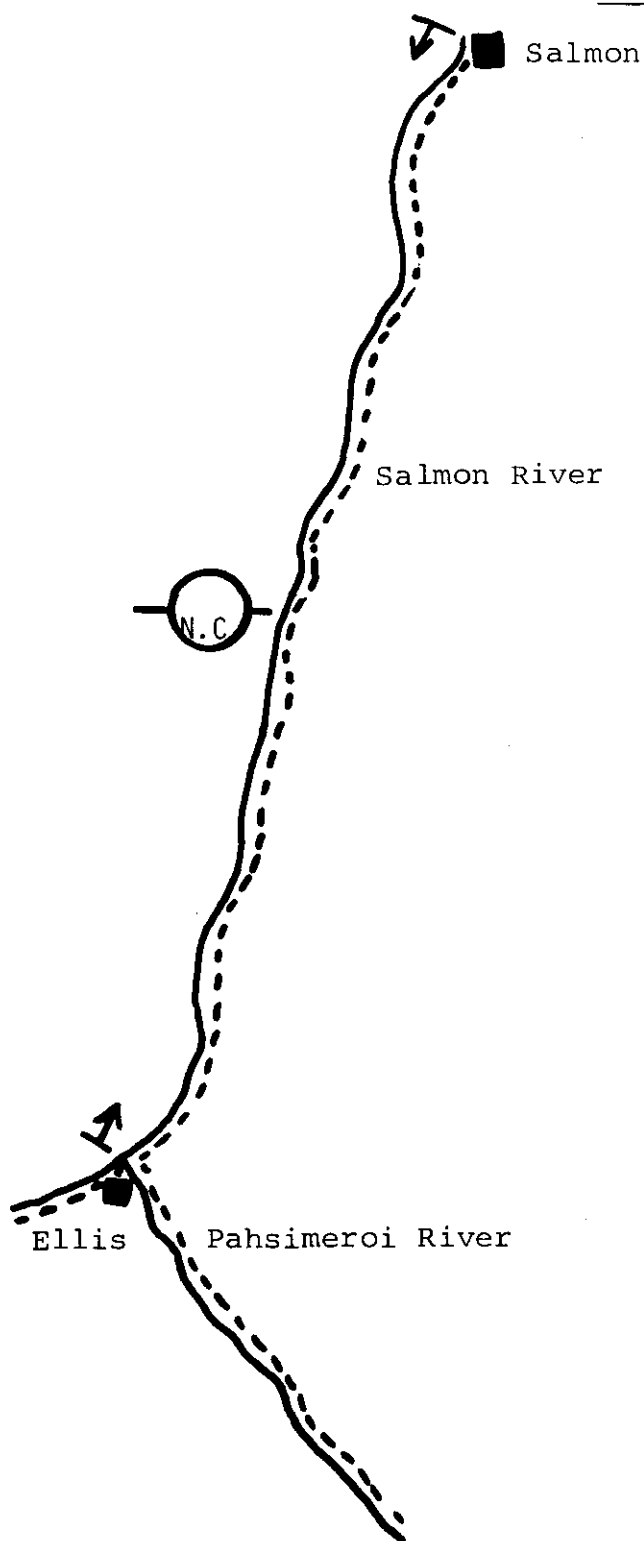
Sunbeam was flown.



DRAINAGE Salmon River SURVEY DATE Sept. 4, 1980
STREAM Salmon River MAP SCALE 1/6" = 1 mile
OBSERVATION CONDITIONS Good OBSERVER Kent Ball
TIMING: Early On Time Late (mark one)
REMARKS: _____



DRAINAGE Salmon River SURVEY DATE _____
STREAM Salmon River MAP SCALE 1/4" = 1 mile
OBSERVATION CONDITIONS _____ OBSERVER _____
TIMING: Early On Time Late (mark one)
REMARKS: Not counted.



DRAINAGE Salmon River

SURVEY DATE August 21, Sept 4, 1981

STREAM Valley Creek

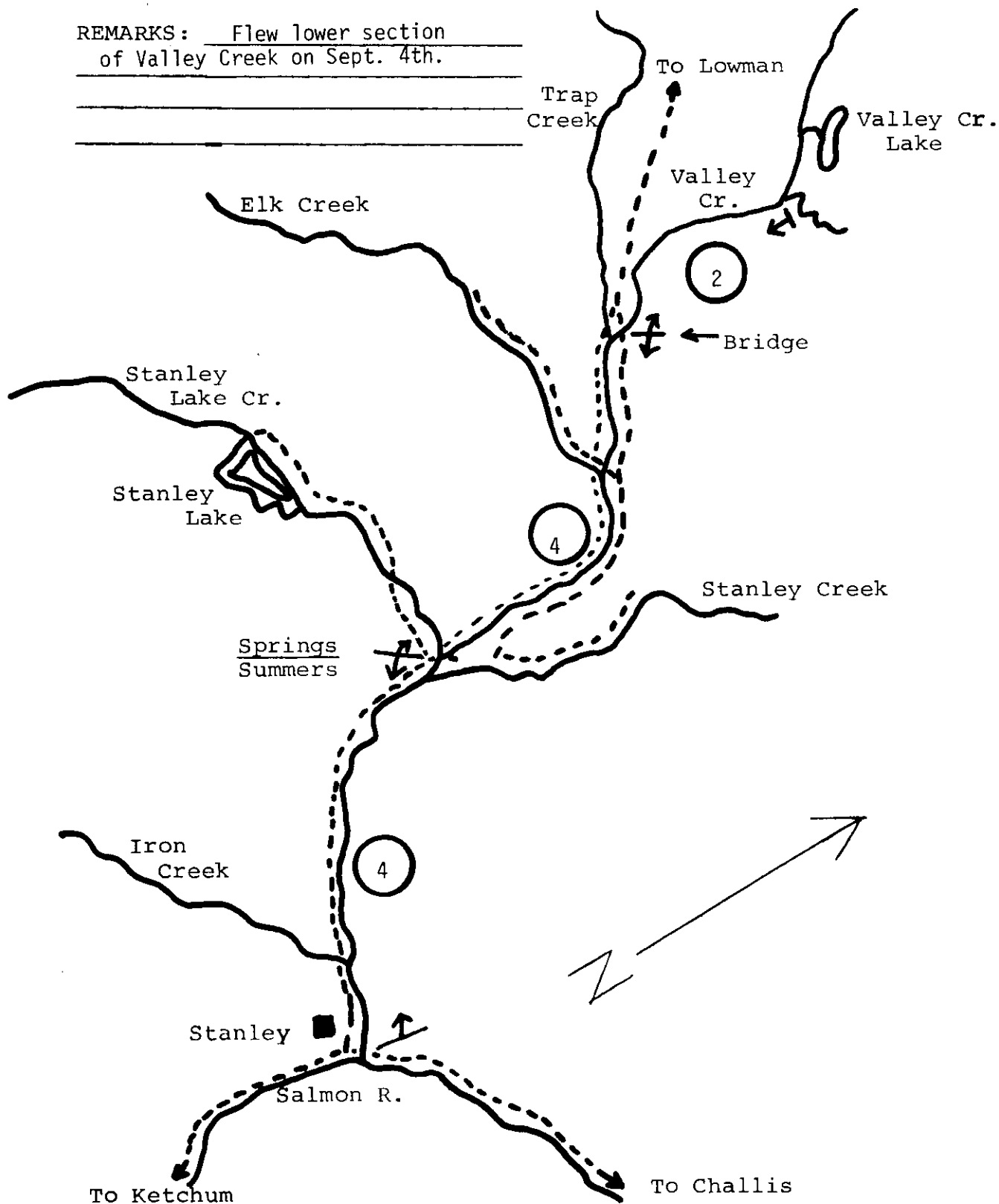
MAP SCALE 2/3" = 1 mile

OBSERVATION CONDITIONS Good

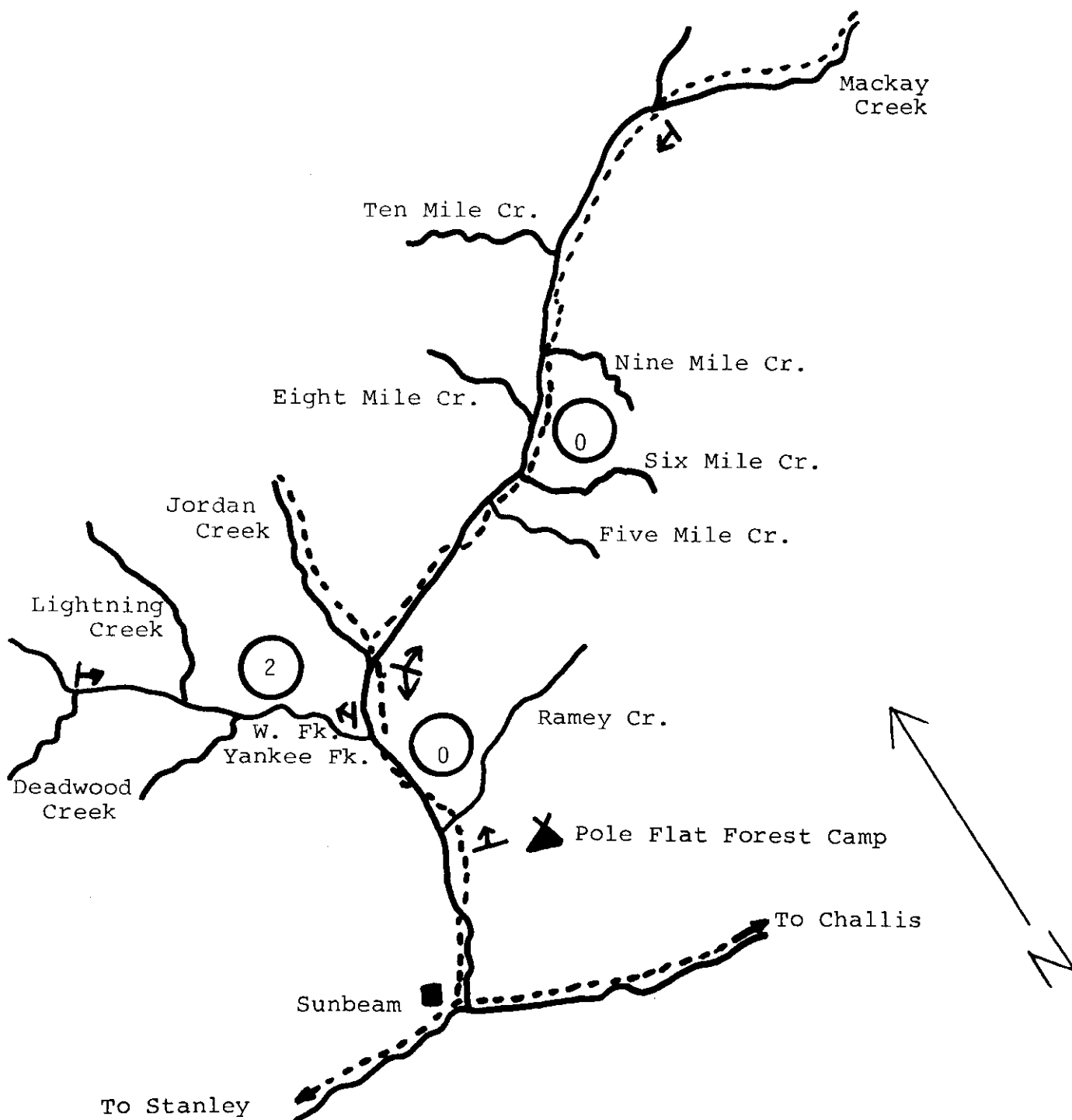
OBSERVER Ball, Gard

TIMING: Early On Time Late (mark one)

REMARKS: Flew lower section
of Valley Creek on Sept. 4th.



DRAINAGE Salmon River SURVEY DATE August 19, 20, 1980
STREAM Yankee Fork MAP SCALE 1/3" = 1 mile
OBSERVATION CONDITIONS Fair, good OBSERVER Ball, Gard
TIMING: Early On Time Late (mark one)
REMARKS: Flew lower Yankee Fork



DRAINAGE Salmon River

SURVEY DATE August 26, 1980

STREAM East Fork

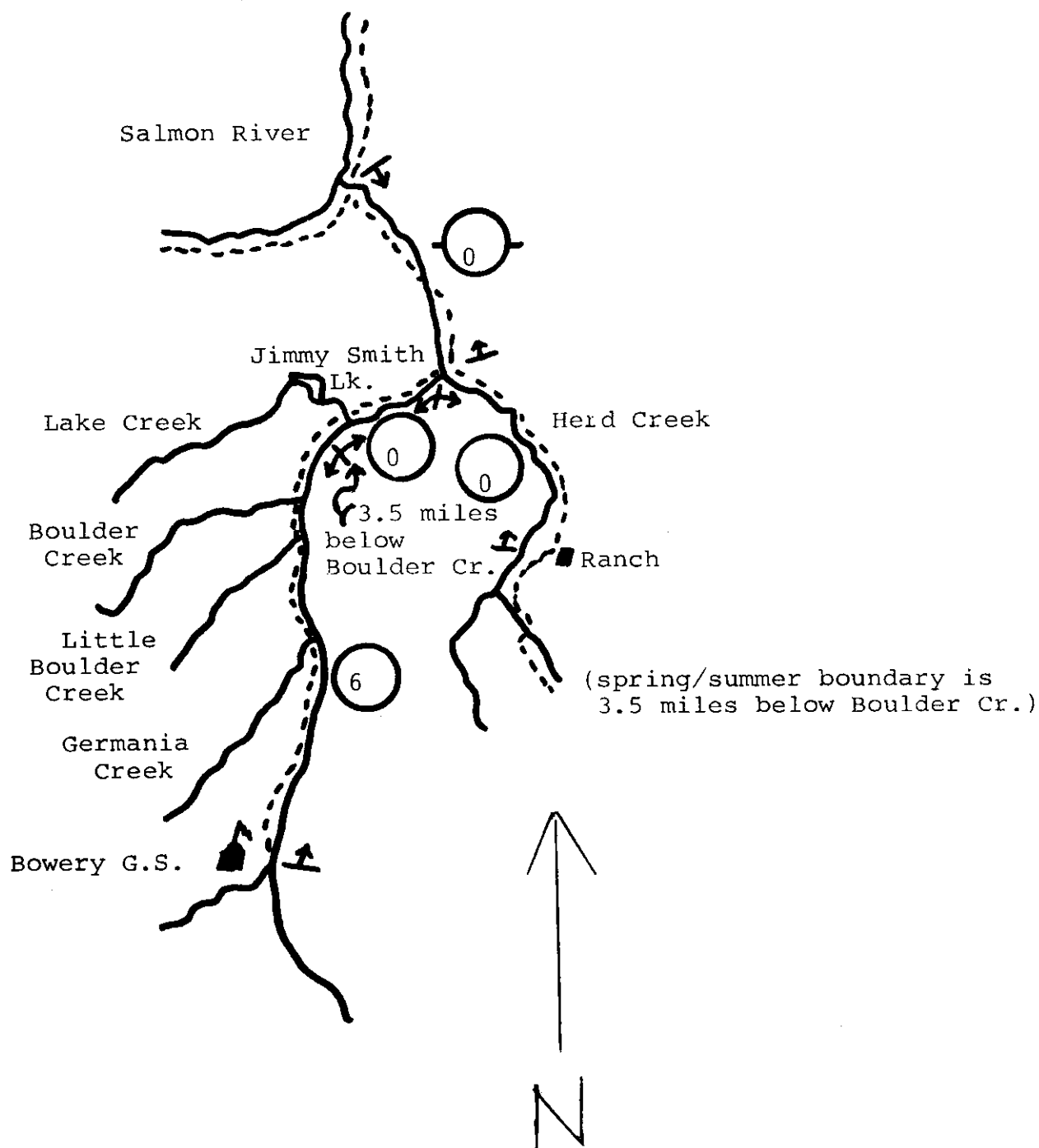
MAP SCALE 1/6" = 1 mile

OBSERVATION CONDITIONS Good

OBSERVER Ball, Jeppson, Gard

TIMING: Early On Time Late (mark one)

REMARKS: Lower section flown.



DRAINAGE Salmon River

SURVEY DATE Sept. 4, 1980

STREAM Lemhi River

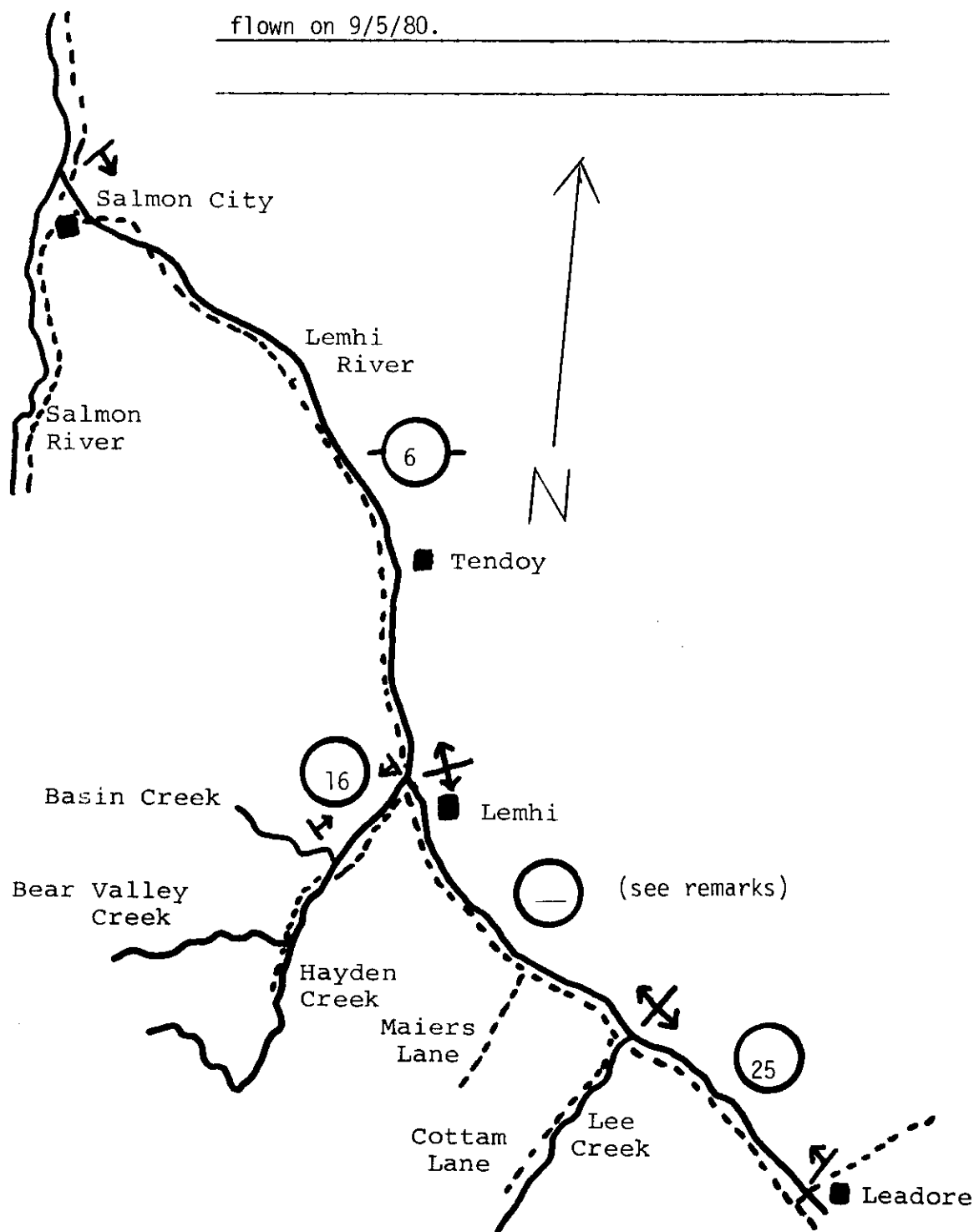
MAP SCALE 1/6" = 1 mile

OBSERVATION CONDITIONS Good

OBSERVER Reingold, Gard, Meyers, Ball

TIMING: Early On Time Late (mark one)

REMARKS: Section from Cottom Lane to mouth of Lemhi was
flown on 9/5/80.



DRAINAGE Salmon River

SURVEY DATE _____

STREAM North Fork

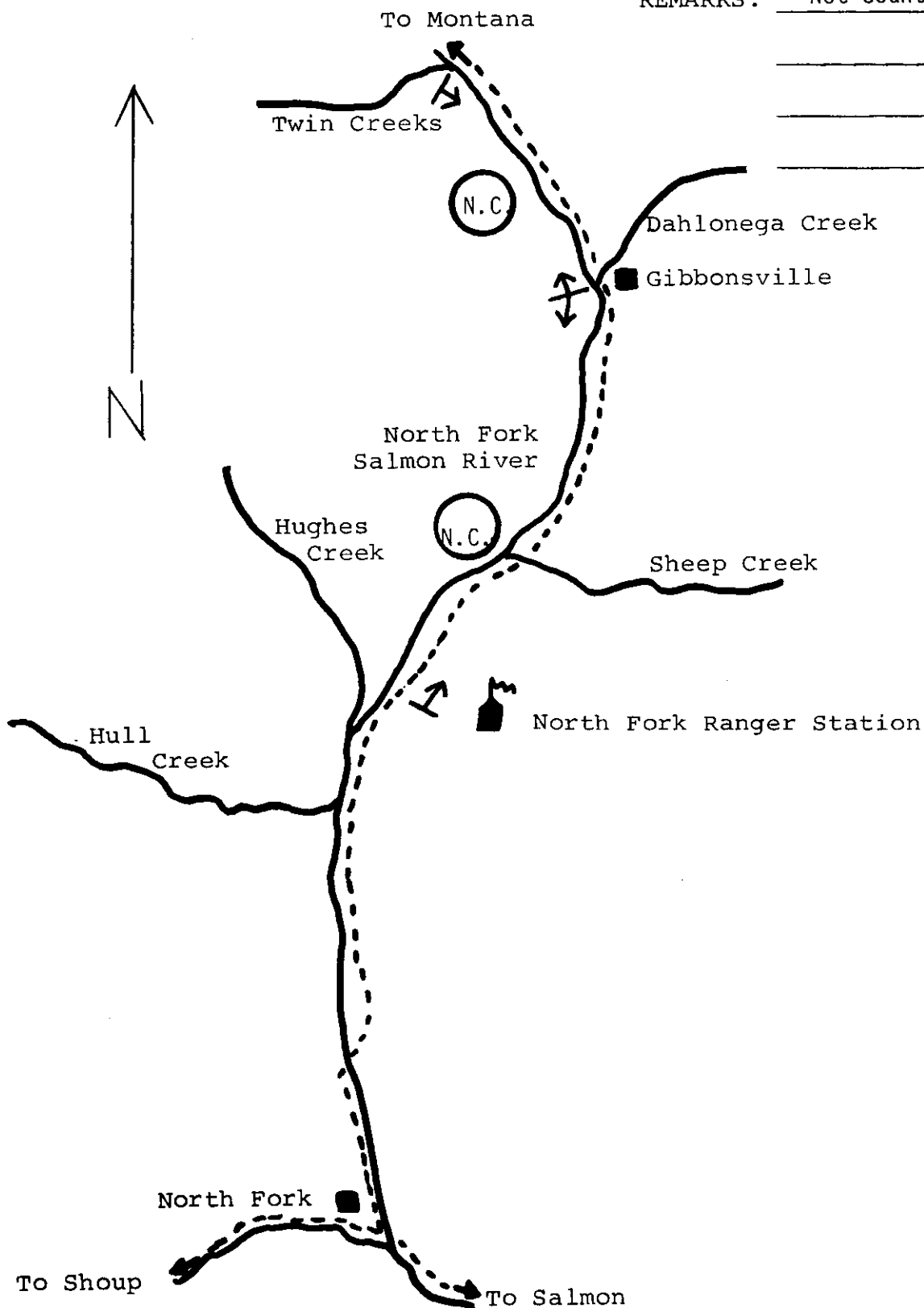
MAP SCALE 1/2" = 1 mile

OBSERVATION CONDITIONS _____

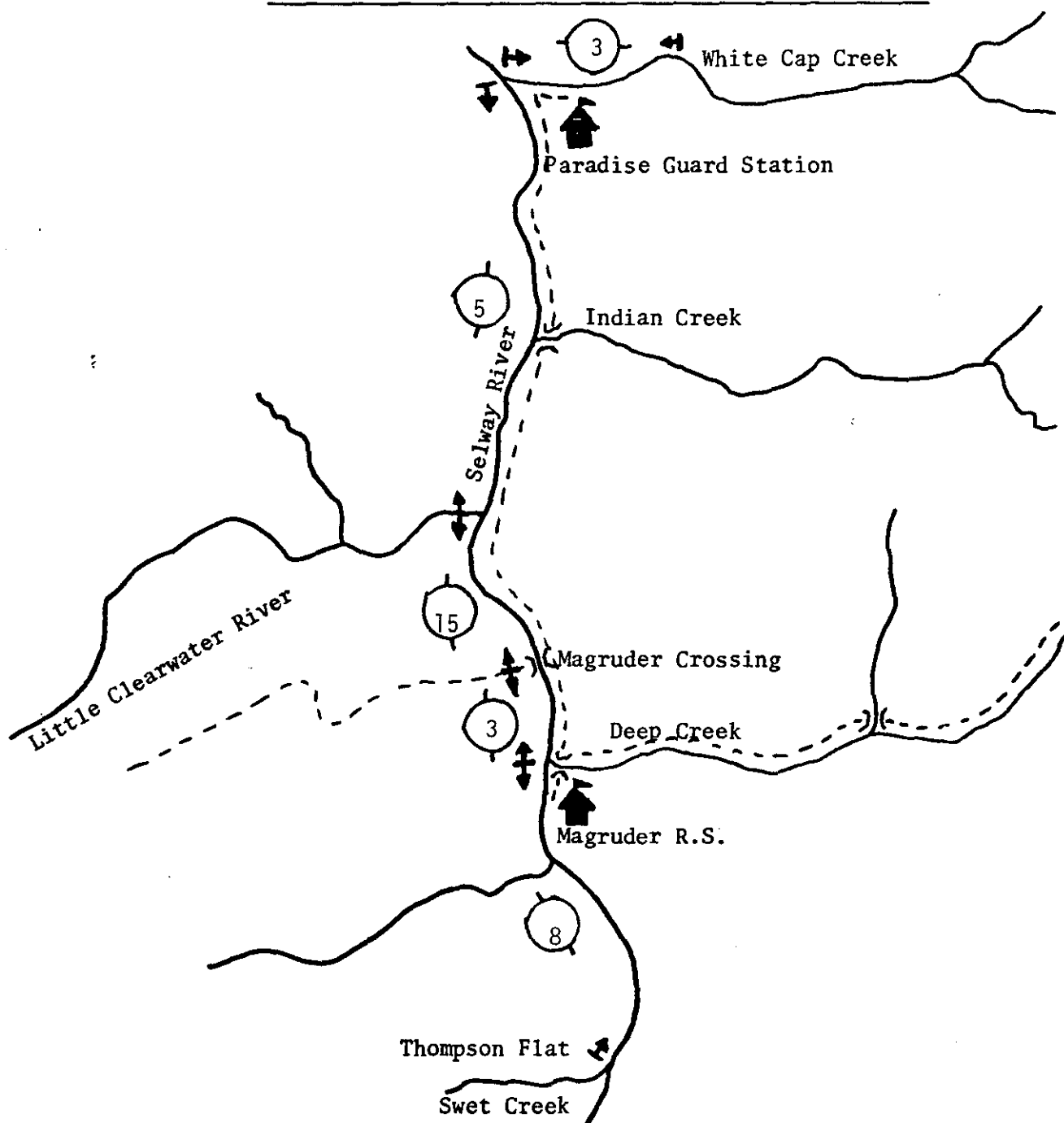
OBSERVER _____

TIMING: Early On Time Late (mark one)

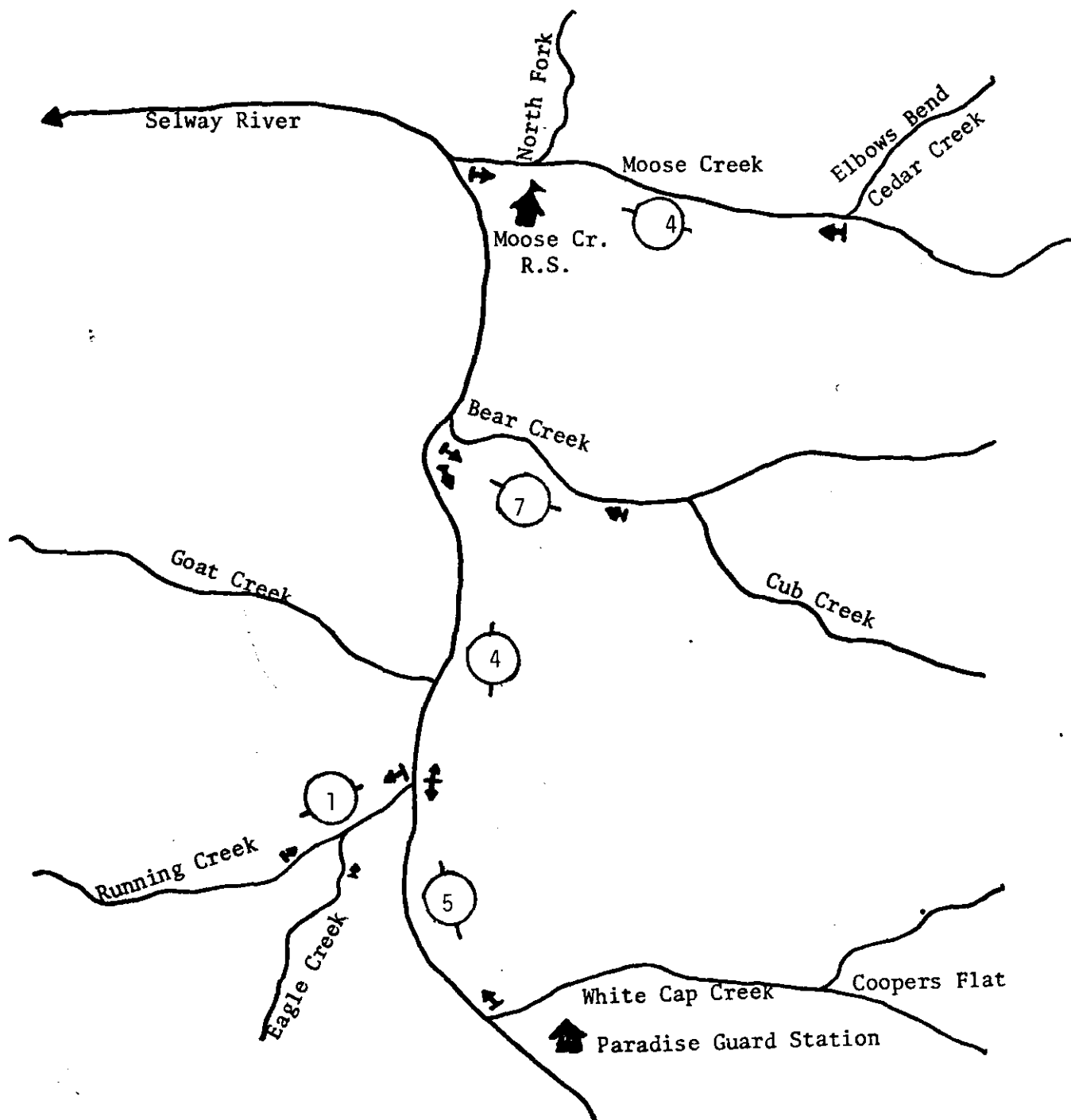
REMARKS: Not counted this year.



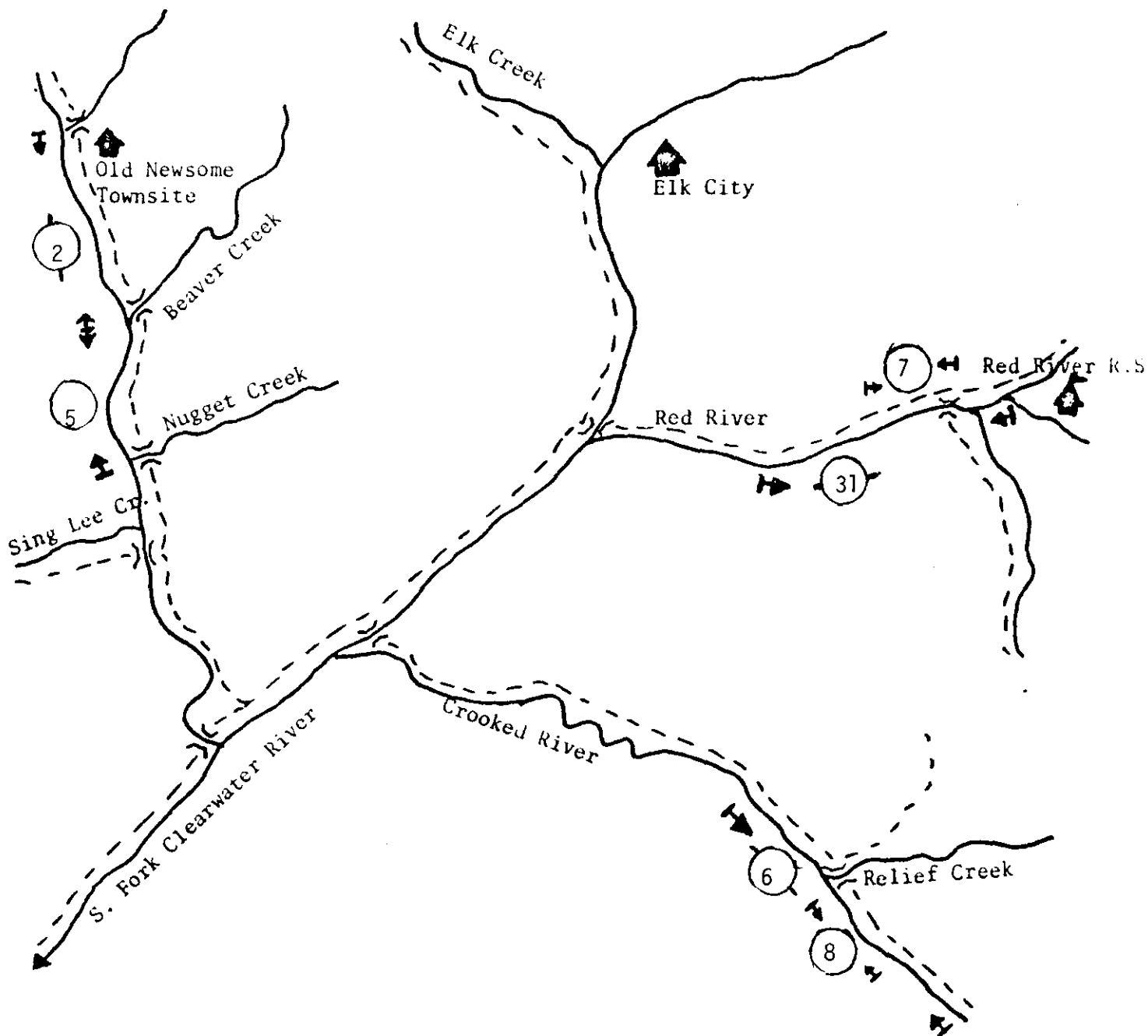
DRAINAGE Clearwater River SURVEY DATE Sept. 4, 1980
STREAM Selway River & tributaries MAP SCALE 1/8" = 1 mile
OBSERVATION CONDITIONS Good OBSERVER Lindland
TIMING: Early On Time Late (mark one)
REMARKS: Sunny weather and low flows made observation
conditions very good.



DRAINAGE Clearwater River SURVEY DATE Sept. 4, 1980
 STREAM Selway River & tributaries MAP SCALE 1/8" = 1 mile
 OBSERVATION CONDITIONS Good OBSERVER Lindland
 TIMING: Early On Time Late (mark one)
 REMARKS: Sunny weather and low flows made observation
conditions very good.



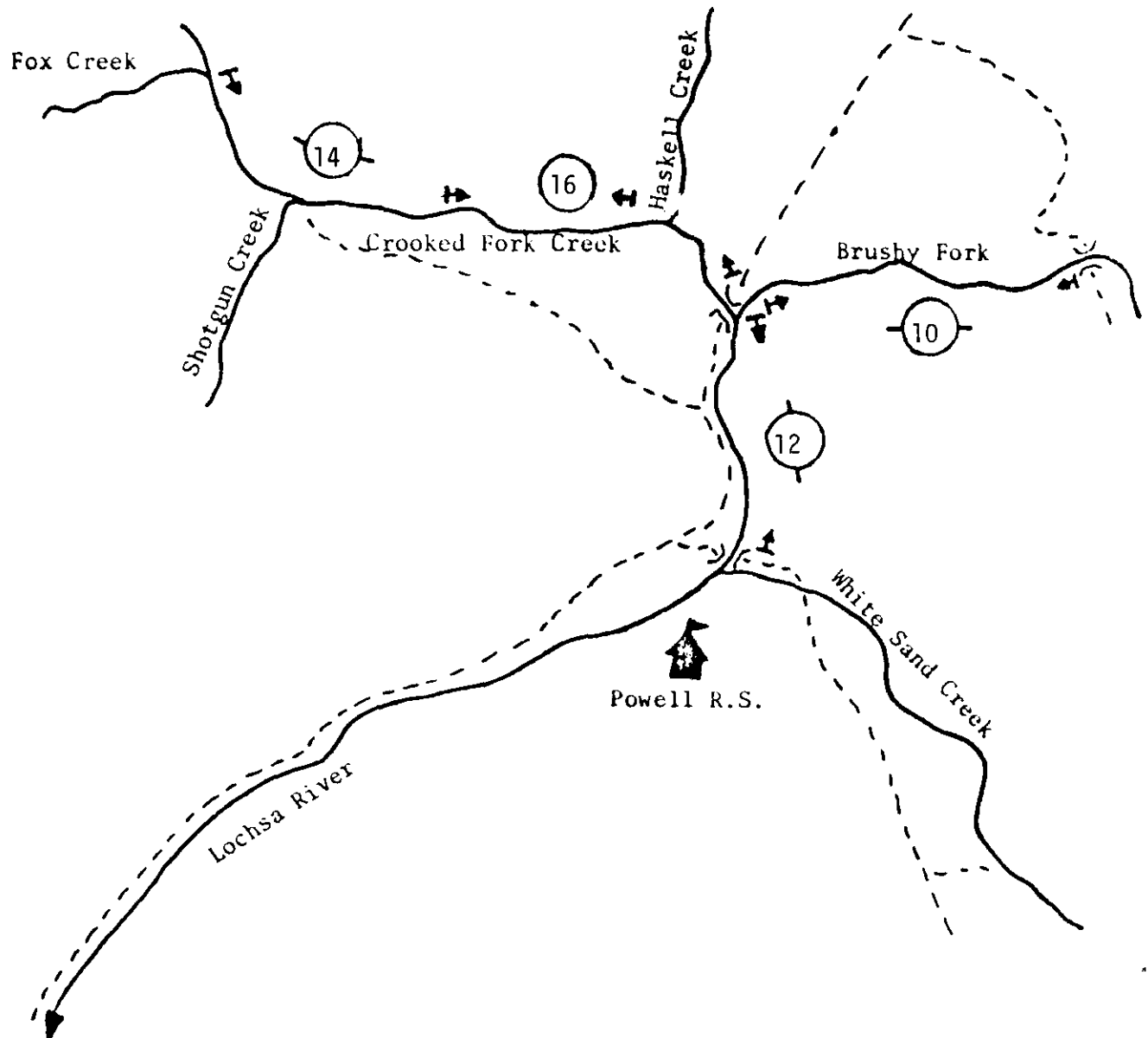
DRAINAGE	<u>S. Fork Clearwater R.</u>	SURVEY DATE	<u>Aerial - Sept. 9, 1980</u> <u>Ground - Sept. 5, 1980</u>
STREAM	<u>As noted</u>	MAP SCALE	<u>1/4" - 1 mile</u>
OBSERVATION CONDITIONS	<u>Good</u>	OBSERVER	<u>Lindland (ground)</u> <u>Cannon (aerial)</u>
TIMING:	Early <u>On Time</u> Late	(mark one)	
REMARKS:	<u>Sunny weather and low flows for both ground and</u> <u>aerial counts.</u>		



DRAINAGE Lochsa River SURVEY DATE Aerial - Sept. 3, 1980
Ground - Aug. 27, 1980
STREAM As noted MAP SCALE 1/4" = 1 mile
OBSERVATION CONDITIONS Good OBSERVER Lindland

TIMING: Early On Time Late (mark one)

REMARKS: Both aerial and ground counts were done during sunny
weather and low flows.

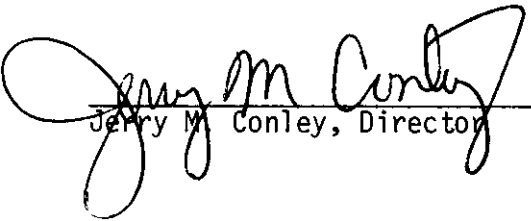


Submitted by:

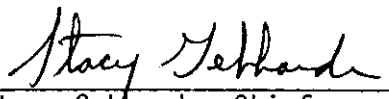
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Regional Fishery Manager

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IDAHO DEPARTMENT OF FISH AND GAME



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Bureau of Fisheries



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Bureau of Fisheries